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Early to Middle Jurassic history of the southern Siberian continent (Transbaikalia) recorded in sediments of the Siberian Craton: Sm-Nd and U-Pb provenance study

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Abstract

© SGF, Published by EDP Sciences 2017. The deposition of Jurassic continental sedimentary rocks in the southern part of the Siberian continent (Transbaikalia) reflects the intensification of tectonomagmatic processes in this region. The most likely cause of this intensification was associated with the formation and development of the Mongol-Okhotsk orogenic belt. The latter was controlled in its turn by the closure of the Mongol-Okhotsk Ocean, for which the timing of its closure, as well as the formation of a collisional orogeny and its subsequent collapse are still under debate. We address this question by studying sediments of the Irkutsk Basin, which were deposited in a short time span in the Middle Jurassic, most likely during the Aalenian. The Sm-Nd data for bulk-rock sandstones demonstrate that the youngest samples of the Irkutsk Basin are characterized by a prominent contribution from a source within the juvenile crust of the Mongol-Okhotsk orogenic belt. U-Pb detrital zircon ages concur with the Sm-Nd data and show that the amount of material derived from local cratonic sources decreased in time whereas material from the remote Transbaikalian sources increased. Our data provide evidence that mountain growth in Transbaikalia intensified rapidly close to the Early and Middle Jurassic boundary.

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Keywords

Irkutsk Basin, Jurassic, Mongol-Okhotsk Ocean, Siberia, Sm-Nd, U-Pb

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